What is claimed is:

SUB B14

1. An actuator for moving a driven member, said actuator comprising:

a displacement element for producing a specific displacement;

a drive member connected to one end of said displacement element and which transfers the displacement of said displacement element to a driven member;

a stationary member which supports the other end of the displacement element;

a compression member for pressing said drive member against the driven member; and

a drive circuit for driving said displacement element such that the drive member and the driven member are in a state of intermittent contact under conditions near the condition of transition from the intermittent contact state to a normal contact state.

2. An actuator as claimed in claim 1, wherein a following relationship is satisfied:

$$Nt=X0(1/(1/k2+1/k3)-1/(1/k1+1/k2+1/k3))$$

when the spring constant of the compression member is designated k1, the combined spring constant of the displacement element and the drive member is designated k2, the spring constant of the driven member is designated k3, the amount of displacement of the displacement element is designated X0, and the compression force applied by the compression member is designated Nt.

SUB B4

3. An actuator as claimed in claim 2, wherein said drive circuit drives said displacement element at a resonance frequency.

4. An actuator as claimed in claim 1, wherein said drive circuit drives said displacement element at a resonance frequency.

5. An actuator as claimed in claim 1, wherein said displace element is a laminate-type piezoelectric element.

6. An actuator as claimed in claim 5, wherein said displace element includes alternating layers of a plurality of piezoelectric thin plates and electrodes.

7. An actuator for moving a driven member, said actuator comprising:

a first displacement element for producing a specific displacement;

a second displace element for producing a specific displacement of which direction has a predetermined angle to a direction of the specific direction of said first displacement element;

a drive member connected to one ends of said first and second displacement elements and which transfers the displacement of said first and second displacement elements to a driven member;

a stationary member which supports the other ends of the first and second displacement elements;

a compression member for pressing said drive member against the driven member; and

a drive circuit for driving said first and second displacement elements such that the drive member and the driven member are in a

state of intermittent contact under conditions near the condition of transition from the intermittent contact state to a normal contact state.

8. An actuator as claimed in claim 7, wherein a following relationship is satisfied:

$$Nt=X0(1/(1/k2+1/k3)-1/(1/k1+1/k2+1/k3))$$

when the spring constant of the compression member is designated k1, the combined spring constant of the first and second displacement elements and the drive member is designated k2, the spring constant of the driven member is designated k3, the amount of displacement of the first and second displacement elements is designated X0, and the compression force applied by the compression member is designated Nt.

9. An actuator as claimed in claim 8, wherein said drive circuit drives said first and second displacement elements at a resonance frequency.

10. An actuator as claimed in claim 7, wherein said drive circuit drives said first and second displacement elements at a resonance frequency.

11. An actuator as claimed in claim 7, wherein each of said first and second displace elements is a laminate-type piezoelectric element.

12. An actuator as claimed in claim 11, wherein each of said first and second displace elements includes alternating layers of a plurality of piezoelectric thin plates and electrodes.